IN THE CLAIMS:

1-64. (Canceled)

65. (Currently amended) A method of transplanting human ES derived neural progenitor cells in a host, said method comprising:

obtaining a source of neural progenitor cells prepared by ~~a method according to claims 40~~ obtaining undifferentiated or pluripotent human embryonic stem cells, providing a differentiating signal under conditions which are non-permissive for stem cell renewal, which do not kill cells and/or induce unidirectional differentiation toward extraembryonic lineages;

culturing the neural progenitor cells in the presence of serum free medium supplemented with B27 and growth factors ~~including,~~ comprising EGF and bFGF; and

injecting the neural progenitor cells into the nervous system of the host.

66. (Currently amended) The method according to ~~claim 65~~ any one of claims 65 or 74-77, wherein the neural progenitor cells are injected into the lateral cerebral ventricle of the nervous system.

67. (Currently amended) A method of producing a stable graft of neural cells and contributing in the histogenesis of a living host said method comprising:

transplanting human ES derived neural progenitor cells into a living host by a method according to claim 66.

68. (Currently amended) A method of modifying a nervous system of a host, said method comprising transplanting human ES derived neural progenitor cells by a method according to claims 67.

69. (Original) The method according to claim 68 wherein said modifying of the nervous system includes any one of replacing deficient neuronal or glial cell populations, restoring deficient functions or activating regenerative and healing processes in the nervous system to regenerate cell populations.

70. (Original) The method according to claim 68 wherein the neural progenitor cells comprise genetically modified neural progenitor cells.

71. (Original) The method according to claim 70 wherein the genetically modified neural progenitor cells express specific desired genes at the target organ.

72. (Original) A method for treating a pathological condition of the nervous system comprising modifying a nervous system of a patient according to claims 68.

73. (Original) The method according to claim 72 wherein the pathological condition is selected from the group including neurodegenerative disorders, mental disorders, vascular conditions, autoimmune disorders, congenital disorders, and trauma.

74. (New) The method of claim 65, wherein said undifferentiated human embryonic stem cells are capable of proliferation *in vitro* and differentiation to neural progenitor cells, neuron cells and/or glial cells and are immunoreactive with markers for human pluripotent stem cells including SSEA-4, GCTM-2 antigen, and TRA 1-60.

75. (New) The method according to claim 65 wherein the conditions for inducing somatic differentiation of stem cells are selected from any one of the following:

culturing the undifferentiated or pluripotent human stem cells for prolonged periods and at high density on a fibroblast feeder cell layer to induce differentiation;

culturing the undifferentiated or pluripotent human stem cells in serum free media;

culturing the undifferentiated or pluripotent human stem cells on a differentiation inducing fibroblast feeder layer wherein said fibroblast feeder layer does not induce extra embryonic differentiation and cell death;

culturing to a high density in monolayer or on semi-permeable membranes so as to create structures mimicing the postimplantation phase of human development; or

culturing in the presence of a chemical differentiation factor selected from the group including bone morphogenic protein-2 or antagonists thereof.

76. (New) The method of claim 74, wherein said undifferentiated or pluripotent human embryonic stem cells are prepared by obtaining an *in vitro* fertilised human embryo; growing the embryo to a blastocyst stage of development; removing inner cells mass (ICM) cells from the embryo; culturing ICM cells on a fibroblast feeder layer under conditions which do not induce extraembryonic differentiation and cell death; and promoting proliferation of undifferentiated stem cells.

77. (New) The method of claim 65, wherein said neural progenitor cells are characterized by expressed markers of primitive neuroectoderm and neural stem cells and wherein said markers are selected from the group including polysialyated N-CAM, N-CAM, A2B5, intermediate filament proteins including nestin and vimentin and the transcription factor Pax-6; and culturing the neural progenitor cells to promote proliferation and propagation.